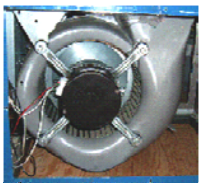
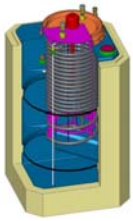
PIER Buildings End-use Energy Efficiency



California Energy Commission

Buildings Energy Efficiency Research & Technology Grant Program

California Energy Commission

Program Opportunity Notice

PON-12-503

Pre-Application Workshop Conference

Date: November 8, 2012

Agenda

Time	Topic
1:30 pm	Introductions and Welcome Solicitation Purpose, Goals and Policy Drivers Proposal Requirements: Administration Schedule of PON Key Dates
2:00 pm	Research Categories
2:30 pm	Other Considerations Evaluation Criteria Additional Information
3:15 pm	Questions and Wrap up

Introductions

Purpose of the workshop, goals sought in proposals, policy drivers

California Energy Commission

Purpose

- **Purpose of Workshop:**
  - **Review key requirements for submitting a proposal under PON -12-503**
- **Things that Govern our Research**
  - **Energy Efficiency and Peak Demand Reduction in Residential and Commercial Buildings**
  - **Loading Order**

Goals for Research Proposals

- **Advance the energy efficiency of new and/or existing residential and commercial buildings**
- **Produce benefits for California ratepayers**
  - **Reduces gas and electric costs, peak demand, and GHG emissions**
  - **Documents savings and cost-effectiveness of energy or water efficiency technologies**
- **Advance science, state of technology or knowledge in a important energy or water-related area**
- **Transform the market with clear market connections for ratepayer benefits**
- **Advance Title 24 (buildings) and Title 20 (appliances) Codes and Standards by expanding compliance or credit options**

Policy Drivers

Integrated Energy Policy Reports
- Target research efforts in energy efficient technologies, techniques, building maintenance and commissioning

AB 32 (Núñez, Chapter 488, Statutes of 2006)
- Reduce greenhouse gas emissions in CA to 1990 levels by 2020

AB 758 (Skinner, Chapter 470, Statutes of 2009)
- Achieve greater energy savings in the state of California's existing residential and nonresidential building stock.

Policy Drivers

Governor's Clean Energy Job Plan

- A timeline to make new homes and commercial buildings zero net energy (ZNE)
- Make existing buildings more energy efficient
- Adopting stronger appliance efficiency standards

California Energy Efficiency Strategic Plan

- All new residential construction in California will be ZNE by 2020.
- All new commercial construction in California will be ZNE by 2030 and 50% of existing buildings will be equivalent to zero net energy
- 40% reduction in energy consumption for existing homes (2008 baseline) by 2020

Proposal Requirements

REQUIRED FORMAT FOR PROPOSAL RESPONSE

Consists of Two Sections

- Section 1 – Administrative Response
- Section 2 – Technical and Cost Proposal

Section 1, Administrative Response

Every Applicant must complete and include the following in Section 1, Administrative Response:

Table of Contents
Application Form - Attachment 1

Section 2, Technical Proposal

Every Applicant must complete and include the following in Section 2.

Executive Summary	4 page maximum
Project Narrative`	15 page maximum

Project Team Summary
Scope of Work
Schedule of Products and Deliverables
Budget Forms
Prevailing Wage Q&A
CEQA Compliance Form
Client References
California Based Entity Questionnaire Form

Grounds for Rejection

- Application is received after the exact time and date for receipt of Applications
- Application does not pass all elements required in the minimum screening criteria
- It contains intentionally false or misleading information.
- It contains confidential information
- The Applicant does not agree to the terms and conditions

Grounds for Rejection

- The budget does not document how at least 60% of PIER funds will be allocated to California Based Entities (CBE)
- The Application and budget does not document how at least 60% of PIER funds will be spent in California in accordance with the budget instructions.
- The firm or individual Applicant has submitted multiple applications for Groups A or B.
- A Major Subcontractor is on multiple teams for the same tasks and projects

Schedule of Key Dates	
Release Program Opportunity Notice	November 1, 2012
Pre-Application Workshop	November 8, 2012
Deadline to Submit Questions	November 8, 2012 @ 5:00 pm
Distribute Questions/Answers and Addenda to PON	November 16, 2012
Deadline to Submit Proposals	**December 14, 2012 @3:00 pm**
Anticipated Notice of Proposed Awards	**February 2013**
Anticipated Energy Commission Business Meeting Approval of Awards (or sooner)	**May 2013**

Proposal Research Categories

Group A: **Technology Innovations and Codes and Standards Advancement**

Group B: Cross Cutting Demonstrations Zero Net Energy Buildings, Whole Building Integration and Low Income Housing

Group A: Technology Innovations and Codes and Standards Advancement

We are seeking research that:

- **Advances science and technology**
- **Improves the energy efficiency, water efficiency and/or demand response capabilities of buildings and building energy using systems and equipment**
- **Provides benefits to ratepayers, such as lower energy costs**
- **Informs the Building and Appliance Energy Efficiency Standards (T-24, T-20).**
- **Need for PIER $**

Group A: Technology Innovations and Codes and Standards Advancement

Electricity Savings Technical Research

- **Funds available $1,600,000**
  - All electricity benefits funded projects/tasks must be completed by March 30, 2015

Natural Gas Savings Technical Research

- **Funds available $8,000,000**
  - All natural gas funded projects/tasks must be completed by March 30, 2017

Group A: Technology Innovations

Electricity Examples

- **Improve the efficiency of a variety of plug load devices**
- **Develop technologies to reduce water consumption and options for gray water reuse**

Natural Gas Examples

- **Food service:**
  - Range top-develop an advanced high efficiency gas-fired range top that will be energy efficient and meet the needs of commercial kitchens
  - Refrigeration- develop refrigeration heat recovery system and demonstrate its energy efficiency potential for preheating domestic water;
  - Hot water - determine hot water loads in commercial restaurants; test water heaters in commercial restaurant applications to identify potential problems with both tankless and high efficiency condensing water heater

Group A: Technology Innovations

Natural Gas Examples (continued):

- **Hot Water and Distribution**
  - Assess high efficiency combined space and water heating equipment.
  - Improve efficiency and develop ultra low NOx hot water heaters
  - Develop cost-effective retrofitting approaches for hot water distribution systems
  - Investigate potential savings and benefits of installing multiple water heating tank systems for residential and commercial buildings
- **Showerheads**
  - Improve showerheads to allow lower future flow rates (2 or 1.5 gallons per minute) to reduce energy and water use in residential and commercial buildings (e.g., hospitality).

Group A: Codes and Standards Advancement

Objectives

- Help develop potential compliance options or credits that advance science and technology, methods, evaluation tools and/or design and installation protocols

Example

- **Thermally Driven Chillers: Natural Gas related**
  - Develop nonresidential performance modeling rule sets for a compliance option for thermally driven chillers that use100% natural gas and any combination of solar heat, waste heat, and bio-gas

Group A: Technology Innovations and Codes and Standards Advancement

Natural Gas Examples (continued):

- **Advanced Energy Efficient Wall /Roof Assemblies**
  - Non-framed wall assemblies
  - Innovative roof systems such as panelized systems
- **Advanced Energy Efficient Heating Systems**
  - **Hydronic heating** – improving efficiency and overcoming technical and economic barriers
  - **Conventional gas furnaces**
    - Find cost-effective ways to improve efficiency
    - Develop ultra-low NOx equipment
- **Advanced Building Envelope Sealing**
  - Develop and field test cost effective high efficacy envelope sealing methods that can reduce air leakage and energy loss in existing buildings.

Group A: Match Funds

- **Match funds required $0.00**
- **Proposal must scores at least 70 points**
- **Bonus points provided for match funds (see Appendix 14)**
- **Match funds**
  - equipment, materials, information technology services, subcontractor costs, cash awards from energy related public agency or utility incentive programs and travel.

Group B: Cross Cutting Demonstrations: Zero Net Energy Buildings, Whole Building Integration and Low Income Housing

- **Funds available**
  - **$3,000,000 (electric)**
  - **$1,000,000 (natural gas)**

Group B: Demonstration Projects

- **Goal of demonstrations**

Demonstrate **innovative and cost-competitive** approaches for new and/or existing residential and commercial buildings that achieve or move California building stakeholders towards market adoption of ZNE buildings.

Group B: Demonstration Projects; What we are looking for :

- **Innovation**
- **Convincing discussion regarding the need for PIER $**
- **Project(s) that maximizes the integration of cost effective energy efficiency options**
- **Approach, method, and design can be reproducible throughout California**
- **Clear potential to move the California building market(s) towards ZNE (new), or VER-existing**
- **Proposed project(s) partners with utilities, developers and others to maximize market transfer**

Group B Research: **Definitions**

• **Zero Net Energy** - Energy provided by on-site renewable energy sources is at least equal to the amount of energy used by the building annually for electricity and natural gas, on a BTU basis.

•**Very Deep Retrofits** result in deep reduction in existing energy use that significantly exceed current building EE standards.

• **Incremental Cost** - The difference in the proposed ZNE project cost versus the cost of building/retrofitting to meet the State's current minimum energy efficiency standards(T24 -2008)

Group B: **Match Funds**

- **Minimum Match funds required 50% of Incremental Costs**
- **Proposal must score at least 70 points**
- **Bonus points provided for match funds above the minimum**
- **Match funds**
  - equipment, materials, information technology services, subcontractor costs, cash awards from energy related public agency or utility incentive programs and travel.

Group B : Demonstrations

- **Match funds from public incentive programs**
  - Must conclusively show the Applicant Team has an award or pending award of any funds through programs such as NSHP and CSI, Savings By Design, DOE, local government etc.
- **A monitoring and verification plan** must be included with a proposal in this category. Plan may extend beyond the term of the agreement.
- **Location** - demonstrations must occur in Investor Owned Utility service territories.

  (PG&E, So.Cal Edison, So. Cal Gas, San Diego Gas and Electric)

Group B : Demonstrations: Documentation

- **Documentation** – summary sheets from model runs, with certified compliance software + detailed design and energy analysis information and assumptions
- "Explain the design features, equipment and construction methods which will enable the project to reach ZNE or VER status. Baseline energy estimates must be provided based on current Title 24-compliant design (new construction, or baseline energy use of an existing building). Provide detailed design and energy analysis information and assumptions. i.e., provide summary sheets for energy simulation model or equivalent to show that:
  - the new building will be ≥ 30% above Title 24 (2008) baseline energy code" or,
  - an existing building's energy use will be at least 60 percent lower once the demonstration is completed and the building should also exceed 2008 energy code.

Group B : Demonstrations – A method to determine the minimum match funds required: illustration

- Cost of Baseline Title 24 Energy Code compliant building =$A
- Cost of Integrated package of Energy Efficiency measures achieving 30% above Title 24 energy code =$B
- Cost of properly sized on-site renewable energy system = $C
  - Note: a multi-family or multiple building renewable energy system that is physically located nearby and that serves the building(s) is acceptable.
- $B+$C = Incremental Costs
- Minimum Match Funding Requirement ($B+$C) * .50

Group B: Low Income Housing Demonstrations

- **Definition: Housing that serves Californians who earn less than 80% of their area's median income.** **Applicants can apply definitions provided by local agencies, but must state definition used and reference source(s)**
- **Possible ideas:**
  - **Demonstrations of cost-effective integrated advanced emerging energy efficiency and renewable technologies**
  - **Integration of demonstrations with novel financing mechanisms**

Example of a previous project can be found at: http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-500-2010-035

Administrative: Other considerations, goals, proposal scoring criteria

Other Considerations

- Private, Public Sector and non-profits can be Prime Contractors
- ***PIER funding*** requested in Grant Proposal :
  - Minimum is $750,000 , Maximum is $2 million
- At least 60% of PIER funds must go to California Based Entities (CBE)
  - Signed Certification required **(P/F screening item)**
- Multiple tasks/projects in each proposal should have linked Objectives

* http://www.energy.ca.gov/contracts/pier.html#piergeneralinfo

Other Considerations

- Only one proposal under each Research Category (Group A or Group B) per Prime contractor
- Primes cannot be subcontractors on other projects
- PIER funds Spent in California – at least 60%
  - Certification required on Attachment 1
- Travel Costs
  - PIER funds can be used for travel directly associated with administration and technical tasks
  - Can be used as match funds
  - PIER funds cannot be used for travel to conferences, workshops and seminars

California Based Entities (CBE) definition

- Pursuant to AB 2267 (Fuentes, 2008)

An entity must meet <u>all</u> of the following requirements to be considered a CBE:

1. A CBE is a corporation or other business form organized for the transaction of business that:
   - Either has its headquarters or an office in California AND
   - Substantially manufactures the product or substantially performs the research within California that is the subject of the award

California Based Entity (continued): definition

2. The proposal must include, at a minimum, a CBE as either the recipient or a subcontractor

3. The budget must show that the CBE(s) will receive 60% or more of the PIER funds awarded.

- **If the CBE is a recipient, no more that 40% of the awarded PIER funds can be subcontracted to non-CBEs**
- **The 60% applies to PIER funds and does not include the match funding.**
- **The 60% requirement can be made up of multiple CBEs.**

PIER funds Spent in California: definition

• Funds under the "Direct Labor" category and all categories calculated based on direct labor in the B-4 budget attachments (Prime and Subcontractor Labor Rates) are paid to individuals that perform the work funded by the agreement while they are physically present in California.

• Business transactions (e.g., material and equipment purchases, leases, and rentals) will be entered into with a business located in California

• Airline ticket purchases are not considered funds "Spent in California"

For important additional information refer to Attachment 12 in PON-12-503

Proposal Evaluation Criteria

- **Technical Merit and Need: discusses the issue(s) proposed research will address, previous topic-related work, the nature of and need for the research and why it should receive PIER funds. (20)**
  - **A minimum score of 14 points (70% of the possible 20 points) must be achieved for this criterion for the whole proposal to receive any further consideration for funding.**
- **Technical Approach and Management (15)**
- **Impacts and Benefits for California (15)**
- **Team Qualifications, Capabilities, and Resources (15)**
- **Budget and Cost Effectiveness (10)**

Proposal Evaluation Criteria

- **PIER Money Spent in California (15)**
  - **More spent in CA = Higher Score**
  - **Budget workbook must reflect funds spent in California**
- **Ratio of Unloaded Labor Rates to Loaded Labor Rates (10)**
  - **Fully loaded rates include direct labor, fringe, general and administrative costs, indirect overhead.**
  - **Estimate project hours for each classification**
  - **In Attachment 5, Linked budget sheets B7 and B8 will fill in and calculate this ratio in the summary worksheets (*at the whole project level*)**

PIER Funds Spent in California - example

- Assume PIER funds requested $750,000
- Fully Loaded Labor is 65% of PIER funds budget
- 45% of time employee(s) will be physically present in CA (Prime, major and minor subcontractors combined)
- .65 * $750,000 = $487,500; .45 * $487,500 = $219,375 labor spent in California
- Assume equipment, supplies and other non-labor related expenses Spent in Ca with PIER funds = 100% or $262,500
- Total $ spent in California = $219,375+ $262,500 = $481,825
- % PIER funds spent in California = $481,825/$750,000= 64 %

Proposal Match Fund Bonus Points

- Match Funds
  - Proposals must score at least 70 points (minimum) to be eligible for bonus points
  - Bonus points will be awarded for more match funding than the minimum required. This applies to both Group A or Group B research
  - Travel expenses can be used as match funds
  - Under Group A $0 match funds required
  - Under Group B match funds must cover at least 50% of the project incremental cost. (P/F item)- see slides #28/31

Questions and Answers

Additional Information

Websites

- http://www.energy.ca.gov/research/buildings/index.html
  - Describes the building program focus areas
- http://www.energy.ca.gov/research/buildings/projects.html
  - Lists building program research projects by focus area
- http://www.energy.ca.gov/publications/searchReports.php?pier1=Buildings%20End-Use%20Energy%20Efficiency
  - Lists of PIER research reports

Other

- **All materials (Questions and Answers and comments) from this Workshop will be posted at the following website under**
  Building End Use Energy Efficiency, PON-12-503
  http://www.energy.ca.gov/contracts/pier.html#buildings

Whom to Contact regarding Questions?

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Thank you!